ELECTRONIC THESAURUS

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THESAURUS

- **A thesaurus in its widest contemporary sense is a classification of words by concepts, topics or subjects.**
- **It need not contain synonyms, and the fact that some items in a given class may be synonymous is coincidental.**
- **A synonym dictionary, by contrast, deals with word groups, and does not constitute a conceptual classification system of the kind exemplified by Roget's Thesaurus of English Words and Phrases (1853).**
- **This is a crude definition: thesaurus frequently contain synonyms, and synymous dictionaries are often thesauric, if the groups in them are large and cross-referenced and reflect a wide interpretation.**

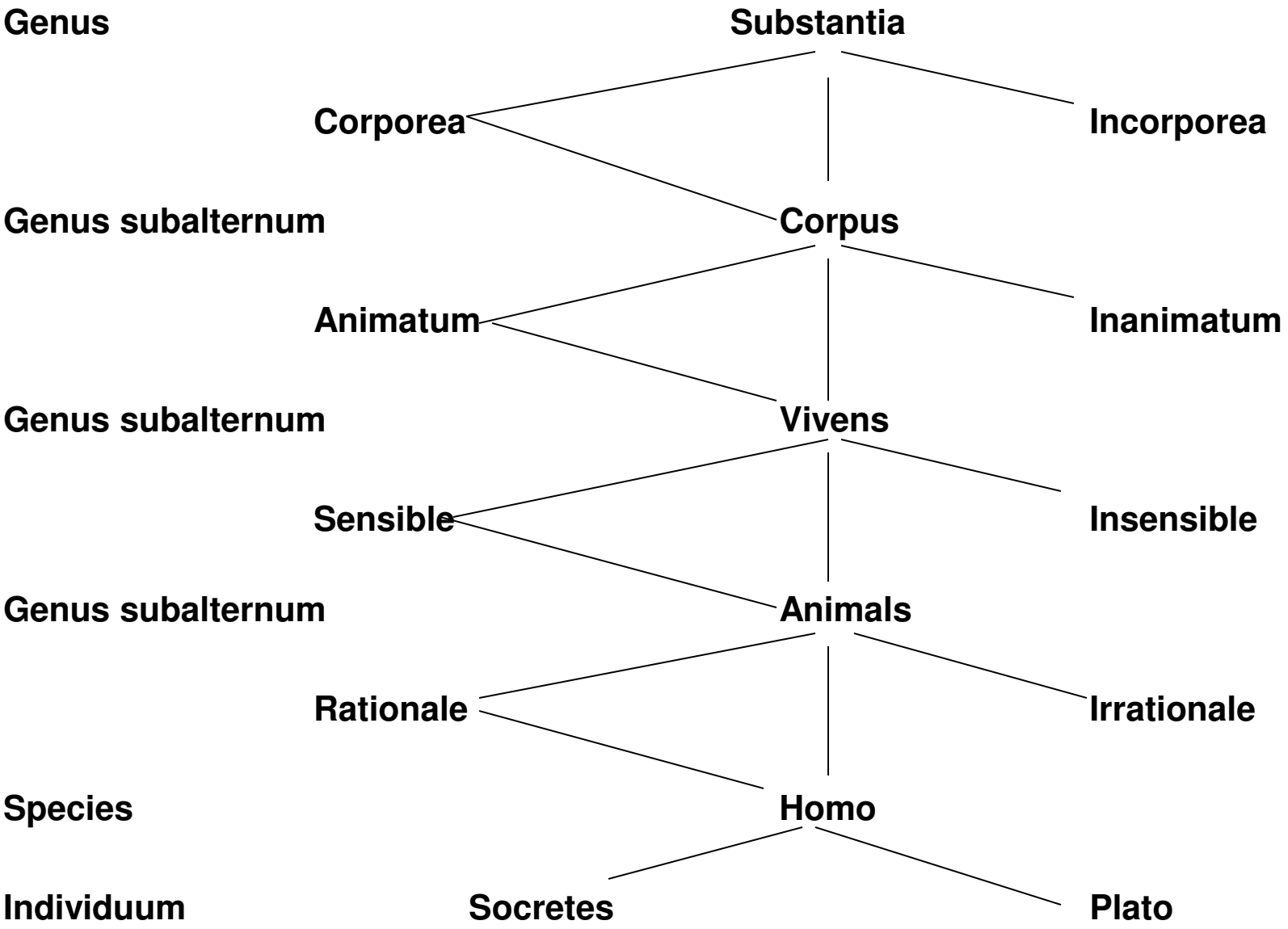
UNIVERSAL LANGUAGES AND 17TH CENTURY TAXONOMY

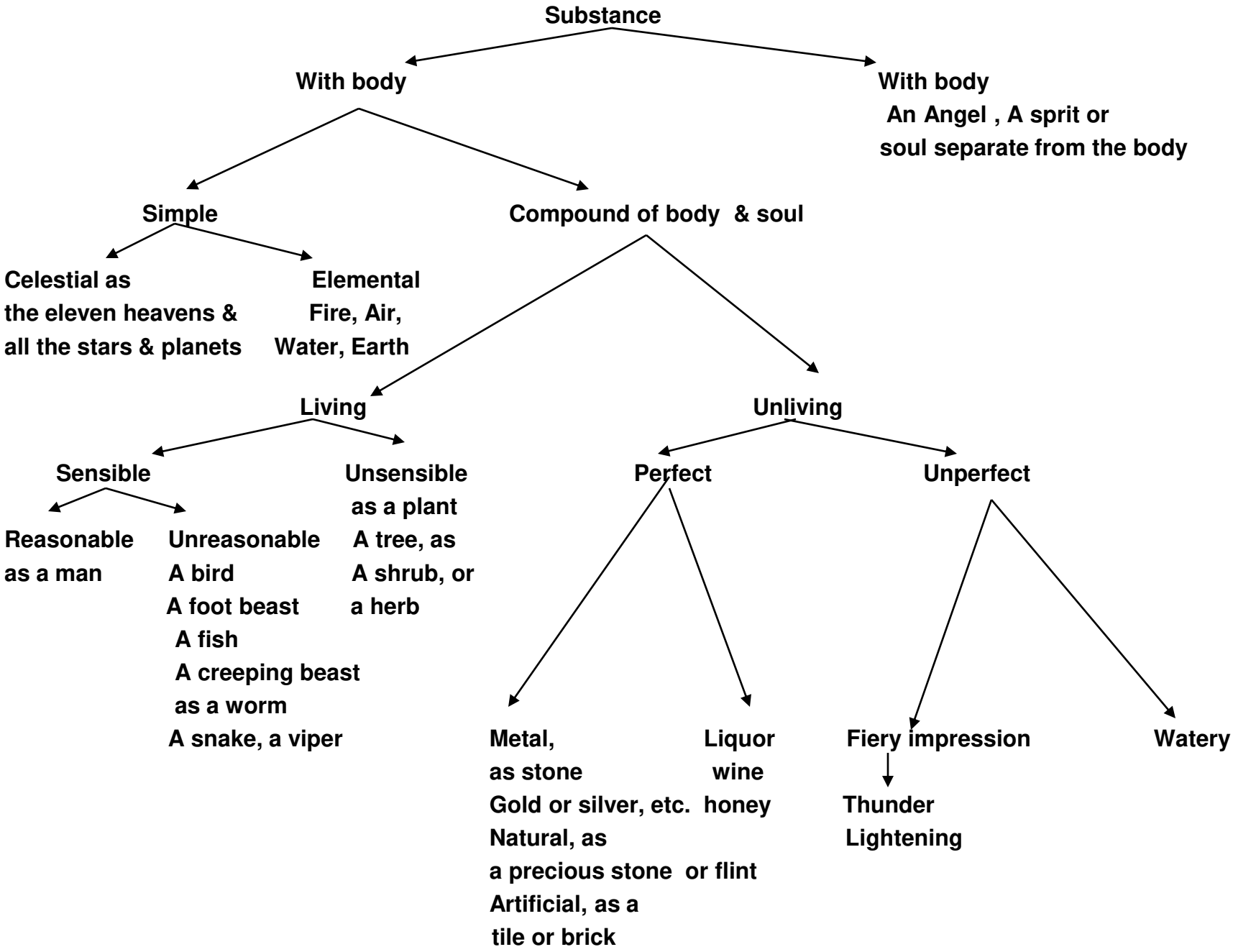
THE RISE OF ESSENTIALIST TXONOMY

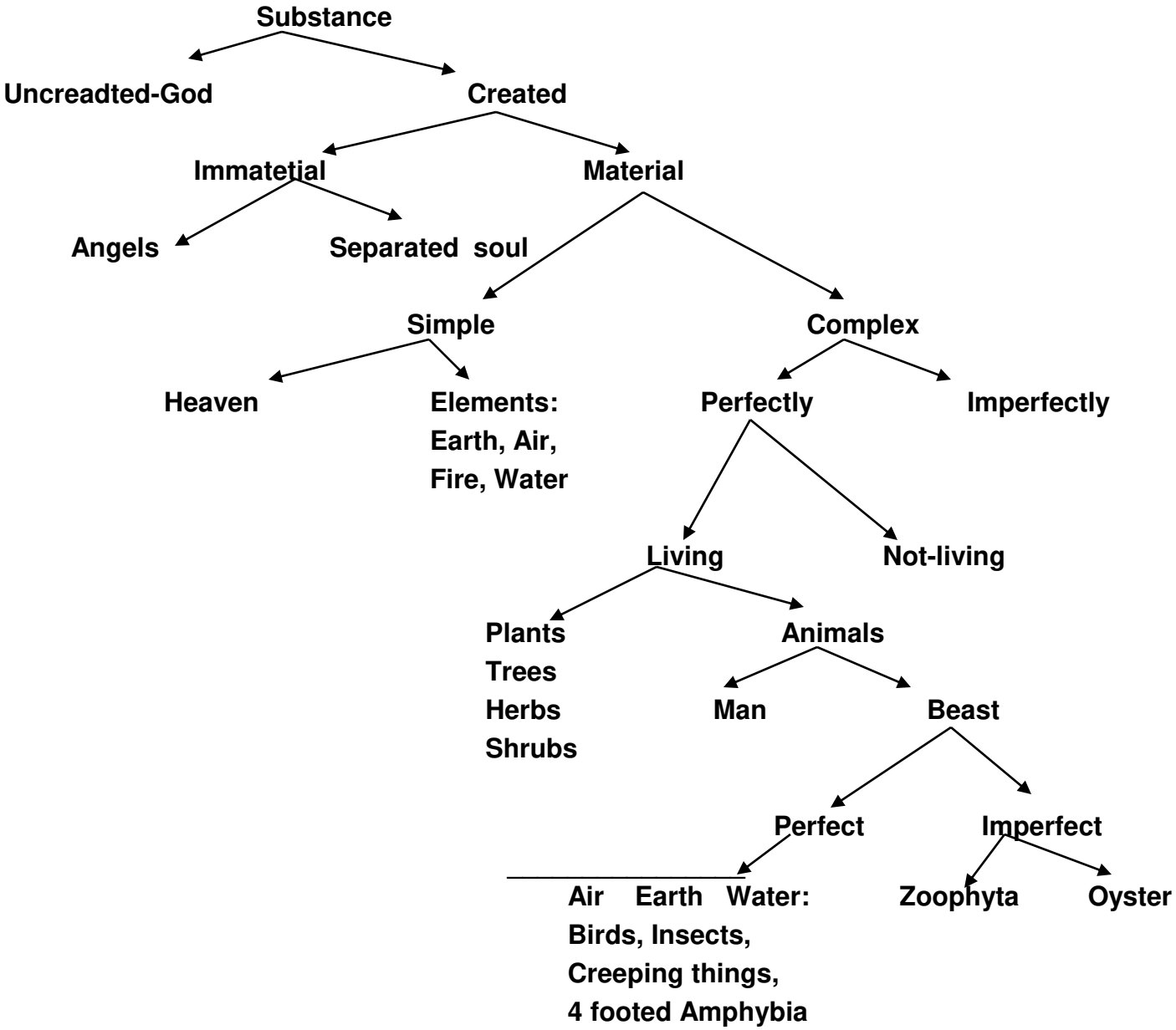
The Aristotelian Origins

1. Essence, genera, and species
2. Words and definitions
3. Classification in logic and science

Logical Classification of the Category of Substance




Substance
With body
With body
An Angel , A sprit or
soul separate from the body
Simple
Compound of body & soul
Celestial as
the eleven heavens &
all the stars & planets
Elemental
Fire, Air,
Water, Earth
Living
Unliving
Sensible
Unsensible
as a plant
A tree, as
A shrub, or
a herb
Perfect
Unperfect
Reasonable
as a man
Unreasonable
A bird
A foot beast
A fish
A creeping beast
as a worm
A snake, a viper
Metal,
as stone
Gold or silver, etc.
Natural, as
a precious stone or flint
Artificial, as a
tile or brick
Liquor
wine
honey
Fiery impression
Watery
Thunder
Lightening


Substance
Uncreadted-God
Created
Immatetial
Material
Angels
Separated soul
Simple
Complex
Heaven
Elements:
Earth, Air,
Fire, Water
Perfectly
Imperfectly
Living
Not-living
Plants
Trees
Herbs
Shrubs
Animals
Man
Beast
Perfect
Imperfect
Air Earth Water:
Birds, Insects,
Creeping things,
4 footed Amphybia
Zoophyta
Oyster

TAXONOMY

1. Socio-cultural change, literacy and the development of science
2. Decontextualization and written language
3. The development of Scientific (botonical) taxonomy

LEVELS OF TAXA

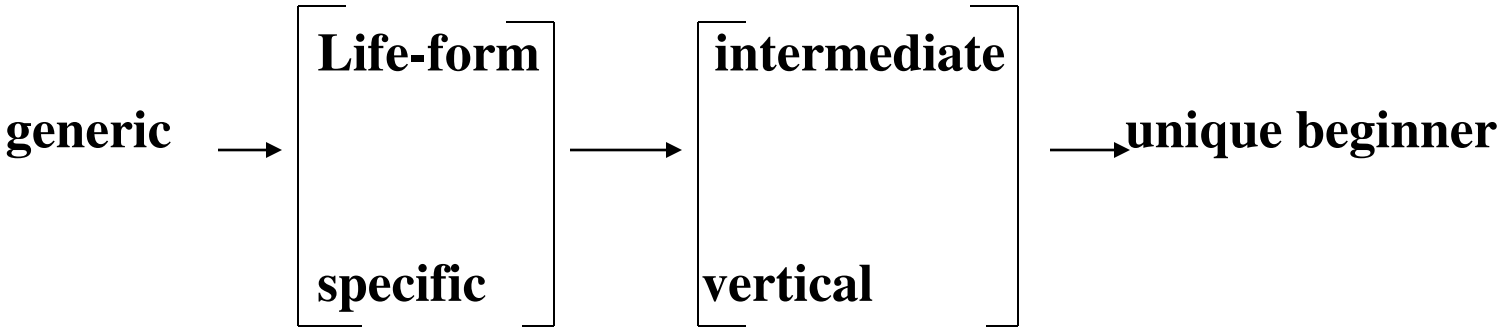
1. Unique Beginner: e.g. plant, animal
2. Life form: e.g. tree, bush, flower, weed, fern
3. Intermediate: this is an unstable category that manifests itself during a period of adjustment in the taxonomic system and then disappears when a settled, adjusted system is re-established
4. Genus: pine, oak, masterwort
5. Species: ponderosa pine, black oak
6. Variety: northern ponderosa pine, swamp white oak

COMPARISON OF BERLIN'S FOLK TAXONOMY WITH A FULLY DEVELOPED HIERARCHY OF SPECIALIZED TAXA

FOLK TAXONOMY	SCIENTIFIC TAXONOMY	
Unique Beginner	Kingdom	
Life Form	Phylum	
	Class	Specialized taxa
	Order	
	Family	
(Intermediate)		
Genus	Genus	
Species	Species	
	Sub-species	
Variety	Variety	

NOMENCLATURE

1. Taxonomy and stages of language development



2. Botonical Nomenclature and taxonomic names

THE DEVELOPMENT OF UNIVERSAL LANGUGES

1. The groundwork
1.1. Words and things
1.2. Taxonomic grammars
2. Proposals and schemes for a universal language
2.1. The scientific background of the language projectors
2.2. Writing systems and real characters
2.3. Lexicons of primitive words
3. Proposals for a philosophical language
4. Scheme for Philosophical language

General: namely those Universal notions, whether belonging more properly to

Things; called TRANSCEDENTAL

GENERAL I

RELATION MIXED II

RELATION OF ACTION III

Words; DISCOURSE IV

Special; denoting either

CAT EGORY V

Creature; namely such things as were created or created by God, not excluding several of those notions, which are framed by the minds of men, considered either

- Collectively; WORLD VI
- Distributively; accoding to the several kinds of Beings, whether such as do belong to
  - Substance
    - Inanimate; ELEMENT VII
    - Animate; considered according to their several
      - Species; whether
        - Vegetative
          - Imperfect; as Minerals
            - STONE VIII
            - METAL IX
          - Perfect; as Plants
            - HERB considered according to
              - LEAFX
              - FLOWERXI
              - SEED-VESSEL XII
            - SHURB XIII
            - TREE XIV
        - Sensitive
          - EXANGUIOUS XV
          - Sanguineous
            - BIRD XVI
            - FISH XVII
            - BEAST XVIII
      - Parts;
        - PECULIAR XIX
        - GENERAL XX
  - Accident;

- Quantity;
  - MAGNITUDE XXI
  - SPACE
  - MEASURE XXXVI
- Quality; whether
  - NATURAL POWER XXIV
  - HABIT XXV
  - MANNERS
  - SENSIBLE QUALITY XXVII
  - SICKNESS XXVIII
- Action
  - SPIRITUAL XXIX
  - CORPORREAL XXX
  - MOTION
  - OPERATION XXXII
- Relation; whether more
  - Private
    - OECONOMICAL XXXIII
    - POSESSIONS XXXIV
    - PROVISIONS XXXV
  - Publick
    - CIVIL XXXVI
    - JUDICIAL XXXVII
    - MILITARY XXXVIII
    - NAVY XXXIX
    - ECCLESIATICAL XL

Plan of Classification

Class	Section	Sub section
ABSTRACT RELATIONS	I. Existence	
	II. Relation	
	III. Quantity	
	IV. Order	
	V. Number	
	VI. Time	
	VII. Change	
	VIII. Causation	
SPACE	I. In General	
	II. Dimension	
	III. Form	
	IV. Motion	
MATTER	I. In General	
	II. Inorganic	1. Solids
		2. Fluids
	III. Organic	1. Vitality
		2. Sensation
INTELLECT	I. Formation of Ideas	
	II. Communication of ideas	
VOLITION	I. Individual	
	II. Intersocial	1. In General
		2. Possessive relations
AFFECTIONS	I. In General	
	II. Personal	
	III. Sympathetic	
	IV. Moral	
	V. Religious	

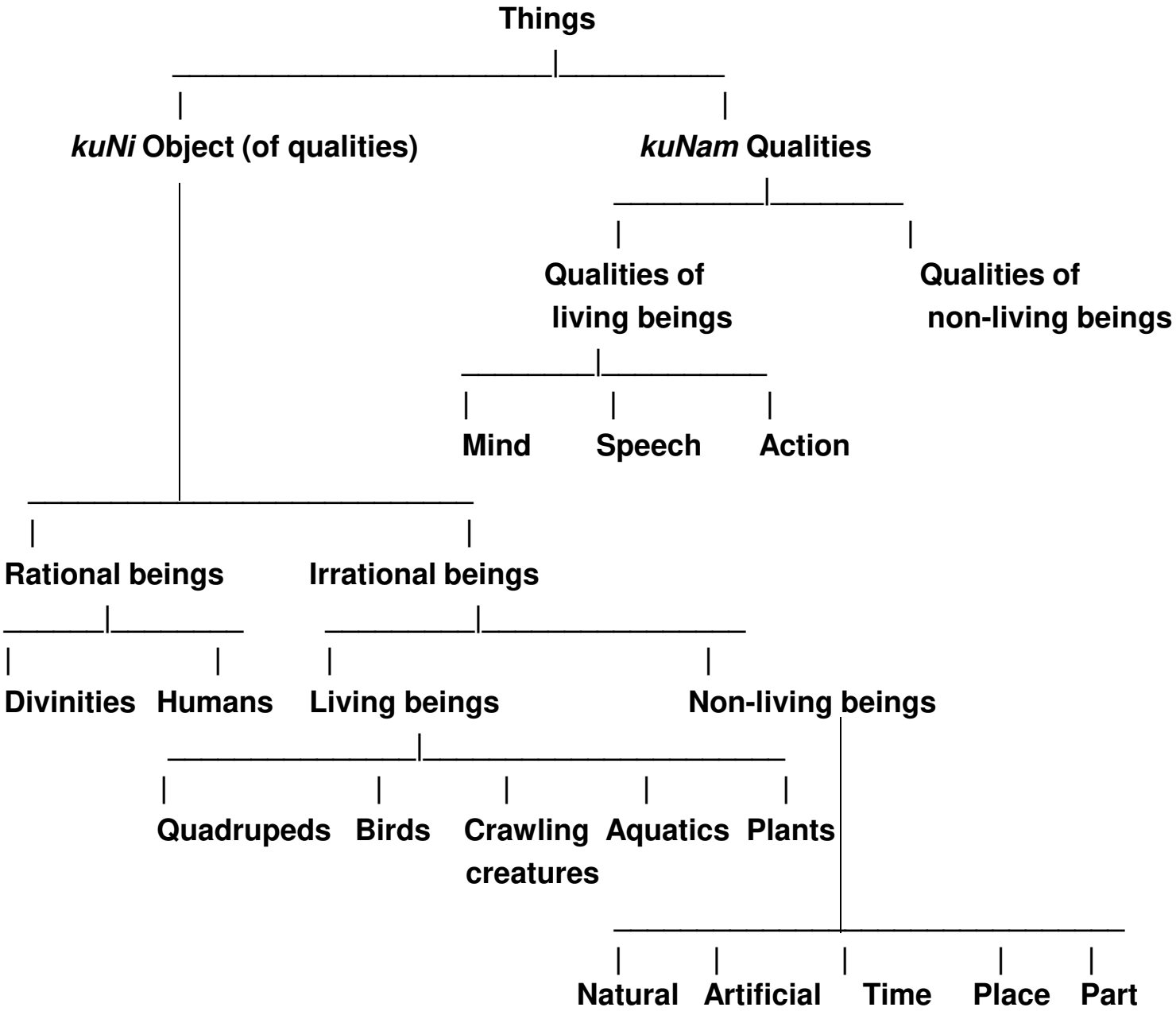
Classification in *ndaamatiipa NikaNTu* (1810)

Rational creatures: 1. Divinities
2. Human Beings

Irrational creatures: 1. Quadrupeds
2. Birds
3. Crawling beings
4. Aquatics
5. Plants

Irrational non-living beings: 1. Natural things
2. Artificial things
3. Place
4.Time
5. Part

Qualities: 1. Living creatures: mental qualities
2. Living creatures: communicative qualities
3. Living creatures: qualities of action
4. Qualities of non-living beings


Things
kuNi Object (of qualities)
kuNam Qualities
Qualities of living beings
Qualities of non-living beings
Mind
Speech
Action
Rational beings
Irrational beings
Divinities
Humans
Living beings
Non-living beings
Quadrupeds
Birds
Crawling creatures
Aquatics
Plants
Natural
Artificial
Time
Place
Part

Nida's Classification

I. Entities

A. Animate

1. Natural

a. Geographical

1'. Celestial-atmospheric: 'sky', 'cloud', 'smoke', 'air', 'rainbow', 'sun', 'moon', etc.

2'. Supernatural: 'heaven', 'paradise', 'hell', 'hades', 'abyss', etc.

3'. Relating to the earth

a'. Generic: 'world', 'place', 'location', 'region', etc.

b'. Features of the land: 'surface', 'valley', 'ravine', 'slope', 'mountain', 'hill', 'desert', etc.

c'. Sea and near by land: 'sea', 'deep', 'lake', 'reef', 'island', 'beach', 'shore', 'bay', 'gulf', etc.

d'. Cultivated areas: 'field', 'farm', 'grainfield, etc.

e'. Politically defined areas: 'kingdom', 'domain', 'province', 'empire', etc.

b. Natural Substance

1’. Generic: ‘elements’

2’. Metals: ‘iron’, ‘silver’, ‘copper’, ‘brass’, etc.

3’. Gems: ‘crystal’, ‘topaz’, ‘beryl’, ‘emerald’, etc.

4’. Stone-to-dust: ‘stone’, ‘pebble’, ‘rock’, ‘marble’, ‘sand’, ‘mud’, ‘soil’, ‘dirt’, ‘dust’, etc.

5’. Fire: ‘fire’, ‘flame’

6’. Water (in various forms): ‘water’, ‘rain’, ‘moisture’, ‘hail’, ‘ice’, ‘snow’, ‘foam’

Etc.

c. Flora and plant products

1’. Trees: ‘tree’, ‘forest’, ‘olive tree’, ‘palm’, ‘fig’, ‘mulberry’, etc.

2’. Bushes and herbs: ‘vegetation’, ‘crop’, ‘weed’, ‘grass’, ‘hay’, ‘barley’, ‘grapevine’, ‘thornbush’, ‘briar’, ‘warmwood’ ‘mustard’, ‘dill’, etc.

3’. Wood products: ‘charcoal’, ‘ashes’, ‘wood’, ‘stick’, ‘splinter’, ‘speck’, etc.

4’. Fruit parts: ‘fruit’, ‘olive’, ‘carob pod’, ‘grain’, ‘seed’, etc.

5’. Non-fruit parts: ‘branch’, ‘leaf’, ‘blade’, ‘shoot’, ‘reed’, ‘blossom’, ‘thorn’, ‘chaff’, ‘straw’, ‘root’, etc.

2. Manufactured or constructed entites

a. Artifacts (nonconstructions)

1'. Generic: 'object', 'thing', 'goods'

2'. Vehicles: 'chariot', 'carriage'

3'. Tools: 'axe', 'nail', 'needle', 'millstone', 'plow', 'trap', 'fishhook', 'yoke', etc.

4'. Armor

a'. Offensive: 'weapon', 'club', 'sword', 'arrow', 'bow', 'spear', etc.

b'. Defensive: 'helmet', 'shield', 'breast plate', etc.

5'. Clothing: 'clothes', 'garments', 'coat', 'rope', 'tunic', 'shirt', 'apron', 'veil', 'belt', 'sandal', etc.

6'. Decoration: 'crown', 'garland', 'diadem', 'ring', 'jewelry', 'elaborate hairstyle', etc.

7'. Cloth and flat artifacts made of cloth: 'face cloth', 'linen', 'silk', 'sackcloth', 'tower', 'curtain', etc.

8’. Furniture: ‘bed’, ‘cot’, ‘stretcher’, ‘coffin’, ‘chair’, ‘throne’, ‘table’, ‘footstool’, ‘altar’, etc.

9’. Lighting and lampstands: ‘lantern’, ‘torch’, ‘lamp’, ‘lampstand’, ‘etc.

10’. Containers: ‘vessel’, ‘dish’, ‘water jar’, ‘jug’, ‘pitcher’, ‘purse’, ‘wineskin’, ‘manger’, ‘feeding trough’, ‘winepress’, ‘sponge’, etc.

11’. Coins: ‘money’, ‘copper coin’, ‘gold coin’, ‘assarion’, ‘denarius’, ‘talent’, etc.

12’. Idols and images: ‘statue’, ‘idol’, ‘image’, ‘cherubim’, etc.

13’. Musical instruments: ‘gong’, ‘cymbal’, ‘harp’, ‘flute’, ‘trumpet’, etc.

I4’. Objects involved in written communication: ‘paper’, ‘parchment’, ‘tablet’, ‘scroll’, ‘pen’, ‘ink’, ‘seal’, etc.

15’. Objects involved in binding: ‘rope’, ‘chain’, ‘stocks’, ‘bonds’, etc.

16’. Objects in involved in execution: ‘cross’

b. Processed substances: foods, ‘medicines and perfumes

1’. Generic: ‘food’, ‘meal’, ‘nourishment’, ‘drink’, ‘scraps’, ‘crumbs’, etc.

2’. Vegetable products: ‘bread’, ‘fruit’, ‘grain’, ‘flour’, ‘olive oil’, ‘fig’, ‘grapes’, ‘wine’, ‘yeast’, ‘manna’, etc.

3’. Animal products: ‘meat’, ‘milk’, ‘fish’, ‘egg’, ‘honey’, etc.

4’. Condiments: ‘salt’, ‘chinnamon’, ‘spice’, etc.

5’. Poisons: ‘deadly poison’, ‘magic potion’, ‘poison’

6’. Medicine: ‘eye salve ‘, ‘ointment’

7’. Perfumes: ‘oil of nard’, ‘aloes’, ‘incense’

8’. ‘perfume’, ‘frankincense’, ‘myrrh’, etc.

c. Constructions

1’ Large nondwellings: ‘building’, ‘temple’, ‘sanctuary’, ‘tabernacle’, ‘synagogue’, ‘palace’, ‘camp’, ‘fortress’, ‘tower’, ‘barn’, ‘jail’, ‘prison’, etc.

2’. Dwellings: ‘inn’, ‘tavern’, ‘house’, ‘home’, ‘tent’, etc.

3’. Open constructions: ‘fold’, ‘market’, ‘theatre’, ‘stadium’, ‘court’, etc.

4’. Parts of buildings: ‘room’, ‘bedroom’, ‘banquet hall’, ‘stable’, ‘gate’, ‘door’, ‘porch’, ‘wall’, ‘flight of steps’, ‘window’, etc.

5’. Small nondwellings: ‘grave’, ‘tomb’, ‘oven’, ‘furnace’, ‘mill’, ‘fence’, etc.

6’. Building materials: ‘keystone’, ‘board’, ‘plank’, ‘beam’, ‘pillar’, ‘tile’, etc.

7’. Excavations: ‘cellar’, ‘pool’, ‘well’, ‘pit’, ‘ditch’, etc.

8’. Places of business: ‘bank’, ‘tax office’, ‘judicial bench’, etc.

9’. Ships and parts of ships: ‘vessel’, ‘sailing vessel’, ‘ship’, ‘boat’, ‘stern’, ‘bow’, ‘sail’, ‘tackle’, ‘anchor’, ‘rudder’, etc.

B. Animate entities

1. Animals, birds, insects

a. Generic: ‘living thing’, ‘animal’, ‘beast’, ‘four-footed animal’

b. Birds: ‘bird’, ‘sparrow’, ‘crow’, ‘raven’, ‘eagle’, ‘vulture’, ‘dove’, ‘pigeon’, etc.

c. Insects: ‘locust’, ‘grasshopper’, ‘moth’, ‘gnat’, ‘mosquito’, etc.

d. Animals

1’. Wild: ‘beast’, ‘bear’, ‘wolf’, ‘fox’, ‘lion’, ‘leopard’, ‘dragon’, etc.

2’. Domesticated (including groupings and sex distinctive names): ‘animal’, ‘cattle’, ‘pig’,‘hog’, ‘swine’, ‘sow’, ‘calf’, ‘ox’, ‘bull’, ‘colt’, ‘donkey’, ‘goat’, ‘lamb’, ‘horse’, ‘camel’, ‘dog’, ‘flocks’, ‘herds’, ‘team’, ‘yoke’, etc.

e. Animal body parts and products: ‘wing’, ‘tail’, ‘wool’, ‘horn’, etc.

2. Human beings

a. Generic and distinctions by age and sex

1’. Generic: ‘man’, ‘human nature’, ‘mankind’, ‘people’, ‘person’, etc.

2’. Males: ‘man’, ‘old man’, ‘young man’, ‘boy’, etc.

3’. Females: ‘woman’, ‘old woman’, ‘young woman’, ‘girl’, etc.

4’. Children: ‘baby’, ‘infant’, ‘child’, etc.

b. Kinship

1’. Generic: ‘generation’, ‘relative’, ‘family’, ‘genealogy’, ‘tribe’, ‘race’, etc.

2’. Offspring: ‘descendants’, ‘posterity’, ‘son’, ‘daughter’, ‘first born’, ‘grand child’, ‘orphan’, ‘etc.

3’.Parents and forefathers: ‘patriarch’ ‘forefather’, ‘ancestor’, ‘parent’, ‘father’, ‘mother’, ‘grand mother’, etc.

4’. Affinals: ‘husband’, ‘wife’, ‘father-in-law’, ‘bridegroom’, ‘bride’, etc.

5’. Collaterals: ‘foster brother’, ‘brother’, ‘sister’, ‘cousin’, etc.

c. Groups

1’. Generic: ‘crow’, ‘people’, ‘multitude’, ‘mob’, ‘division’, etc.

2’. Socioreligious: ‘congregation’, ‘church’, ‘outsiders’, ‘brotherhood’, ‘Gentile’, ‘pagan’, ‘party’, ‘sect’, ‘proselyte’, ‘synagogue’ etc.

3’. Sociopolitical: ‘assembly’, ‘state’, ‘nation’, ‘citizen’, ‘alien’, ‘foreigner’, ‘exile’, etc.

4’. Religiopolitical: ‘body of elders’, ‘Sanhedrin’, ‘local council’, etc.

5’. Social: ‘household’, ‘companion’, ‘friend’, ‘comrade’, ‘neighbor’, etc.

d. Body, body parts, and body products

1’. Generic: ‘body’, ‘corpse’

2’. Parts: ‘member’, ‘head’, ‘skull’, ‘forehead’, ‘eye’, ‘ear’, ‘nose’, ‘mouth’, ‘tongue’, ‘tooth’, ‘neck’, ‘breast’, ‘womb’, ‘stomach’, ‘leg’, ‘knee’, ‘thigh’, etc.

3’. Body products: ‘vomit’, ‘clot of blood’, ‘saliva’, ‘gall’, ‘tear’, ‘sweat’, etc.

3. Supernatural powers or beings

a. Powers of personifications: ‘heavenly beings’, ‘stars (army) of heaven’, ‘sprit of divination’, ‘elemental sprits’, ‘Justice’, ‘Aeon’, etc.

b. Personal beings: ‘god’, ‘goddess’, ‘demon’, ‘evil’, ‘sprit’, ‘angel’, ‘archangel’, ‘ghost’, ‘apparition’, etc.

II. Events

A. Physical: atmospheric (e.g. ‘wind’, ‘storm’, ‘rain’), involving liquids (e.g. ‘flood’, ‘over flow’), sounds (e.g. ‘noise’, ‘roar’), burning (e.g. ‘burn’, ‘smoke’, ‘extinguish’, ‘smoulder’), etc.

B. Physiological: eating (e.g. ‘nurse’, ‘devour’, ‘dine’), reproduction (e.g. ‘copulate’, ‘become pregnant’, ‘give birth’, ‘miscarriage’), sleep –wake (e.g. ‘fall asleep’, ‘sleep’, ‘rouse’), die (‘lay down once life’, ‘be at death’s door’, ‘drown’), etc.

C. Sensory: hearing (e.g. ‘hear’, ‘listen to’, ‘overhear’), touch (e.g. ‘touch’, ‘feel’, ‘tap’), see (e.g. ‘see’, ‘regain one’s sight’, ‘observe’, ‘watch closely’, ‘be an eye witness’), taste (‘taste’), smell (‘smell)

D. Emotive: desire for (e.g. ‘love’, ‘desire’, ‘passion’), opposition to (e.g. ‘hate’, ‘despise’, ‘be jealous of’), ‘fear-anxiety (e.g. ‘fear’, ‘be anxious about’, ‘worry’), sadness (e.g. ‘mourn’, ‘sorrow’, ‘sad’) etc.

E. Intellectual: thinking (e.g. 'reason', 'plan', 'calculate', 'imagine'), memory (e.g. 'remember', 'forget', 'recall'), decision (e.g. 'judge', 'decide', 'select', 'compare'), perceiving and learning (e.g. 'recognize', 'discover', 'learn'), etc.

F. Communication: nonverbal (e.g. 'signal', 'make a sign', 'wail', 'laugh'), speaking (e.g. 'speak', 'talk', 'shout'), writing-reading (e.g. 'write', 'sign', 'read'), religious (e.g. 'pray', 'prophesy', 'oath'), instruction (e.g. 'teach', 'explain', 'admonish', 'persuade', 'instruct'), dialogue (e.g. 'argue', 'converse', 'debate'), command (e.g. 'order', 'command', 'demand', etc.

G. Association: coming together (e.g. 'associate', 'unite', 'meet', 'join'), opposition to (e.g. 'rebel', 'fight', 'war', 'oppose'), marriage (e.g. 'betroth', 'marry', 'divorce'), hospitality (e.g. 'visit', 'receive as guest', 'wash the feet of'), appropriate interpersonal (e.g. 'make a covenant with', 'be loyal to', 'be merciful to', 'respect', 'honor'), etc.

H. Control: put under control (e.g. ‘conquer’, ‘overcome’, ‘seize’, ‘arrest’, ‘catch’), rule over (e.g. ‘rule’, ‘direct’, ‘keep watch over’, ‘govern’, ‘make obey’), resistance to control (e.g. ‘disobedience’, ‘disobey’, ‘refuse’, ‘escape’), punishment (e.g. ‘correct’, ‘punish’, ‘discipline’), etc.

I. Movement: general (e.g. ‘move’, ‘travel’, ‘roam’, ‘wander’), directionally oriented movement (e.g. ‘come’, ‘go’, ‘encircle’, ‘arrive’, ‘leave’, ‘return’, ‘enter’), means of movement (e.g. ‘walk’, ‘run’, ‘jump’, ‘leap’), medium of movement (e.g. ‘fly’, ‘swim’), association (e.g. ‘lead’, ‘bring’, ‘follow’, ‘accompany’, etc.

J. Impact: break (e.g. ‘break’, ‘break into fragments’), crush-smash (e.g. ‘crush’, ‘shatter’, ‘smash into pieces’), cut-stab (e.g. ‘cut’, ‘hew’, ‘shear’, ‘wound’, ‘pierce’, ‘sting’), beat (e.g. ‘beat’, ‘strike’, ‘hit’, ‘slap’, ‘knock’, ‘down’), kill (e.g. ‘kill’, ‘murder’, ‘slay’, ‘stone’, ‘choke’, ‘behead’), ruin-destroy (e.g. ‘ruin’, ‘destroy’, ‘abolish’, ‘demolish’, ‘lay waste’), harm-injure (e.g. ‘harm’, ‘injure’, ‘inflict’, ‘wound’), etc.

K. Transfer: distribution (e.g. 'distribute', 'give', 'divide among', 'waste'), receiving (e.g. 'take', 'receive', 'accept', 'acquire', 'gain'), transfer of assets (e.g. 'deposit with', 'invest', 'entrust to'), transfer by force (e.g. 'plunder', 'steal', 'rob'), commercial transaction, often reciprocal (e.g. 'buy/sell', 'barrow/lend', 'pledge/redeem', 'exchange'), etc.

L. Complex activities, involving a series of movements or actions: agricultural (e.g. 'sow', 'plough', 'harvest'), involving domesticated animals (e.g. 'herd', 'care for', 'shear'), food processing (e.g. 'cook', 'prepare a meal'), involving cloth (e.g. 'spinning', 'weaving', ''sewing'), involving constructions (e.g. 'build', 'erect', 'tear down'), religious rites (e.g. 'sacrifice', 'worship', 'circumcision', 'celebrating the Passover'), etc.

III. Abstracts

A. Time: ‘today’, ‘tomorrow’, ‘future’, ‘year’, etc.

B. Distance: ‘Sabbath day’s journey’, ‘stadion’, ‘cubit’, etc.

C. Volume: ‘ephah’, ‘kor’, etc.

D. Velocity: ‘slow’, ‘fast’, ‘quickly’, etc.

E. Temperature: ‘hot’, ‘cold’, ‘lukewarm’, etc.

F. Color: ‘black’, ‘purple’, ‘scarlet’, ‘white’, etc.

G. Number: ‘one’, ‘two’, etc.

H. Status: ‘rich’, ‘poor’, ‘slave’, ‘free’, etc.

I. Religious character: ‘holy’, ‘profane’, ‘clean’, ‘unclean’, ‘godless’, ‘devout’, etc.

J. Attractiveness: ‘attractive’, ‘beautiful’, etc.

K. Age: ‘old’, ‘young’, ‘ancient’, ‘new’, etc.

L. Truth-falsehood: ‘true’, ‘false’, ‘honest’, ‘deceitful’, etc.

M. Good-bad: ‘good’, ‘bad’, ‘right’, ‘wrong’, ‘righteous’, ‘unrighteous’, etc.

N. Capacity: ‘able’, ‘unable’, ‘capable’, ‘incapable’, ‘strong’, ‘weak’, etc.

O. State of health: ‘well’, ‘sick’, ‘strong’, ‘weak’, etc.

Etc.

IV. Relationals

A. Spatial: ‘up’, ‘down’, ‘around’, ‘before’, ‘behind’, ‘through’, etc.

B. Temporal: ‘when’, ‘while’, ‘during’, ‘since’, etc.

C. Deictic: ‘this’, ‘that’, ‘former’, ‘later’, ‘the’ (definite), ‘a’ (indefinite), etc.

D. Logical: ‘since’, ‘because’, ‘in order that’, ‘whereas’, ‘although’, ‘moreover’, ‘therefore’, ‘however’, ‘but’, ‘and’, etc.

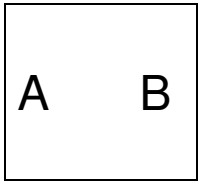
Etc

CONGRUENCE RELATIONS

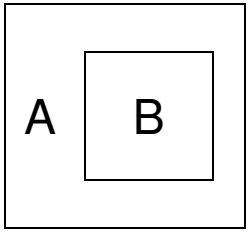
The four basic relations between classes furnish:

- **a model for fundamental group of sense relation**
- **a set of systematic variants applicable to virtually all other paradigmatic sense relations.**

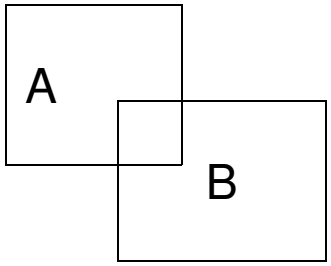
Identity: class A and class B have same members



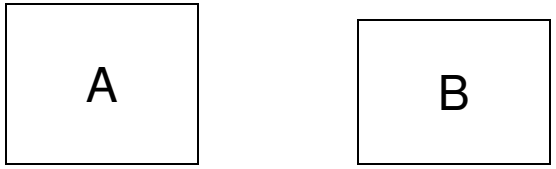
Inclusion: class B is wholly included in the class A



Overlap: class A and class B have members in common but each has members not found in the other



disjunction: class A and class B have member in common



Lexical Relations

1. Synonymy
2. Hyponymy and hypernymy
3. Compatibility
4. Incompatibility
5. Meronymy and holonymy
6. Troponymy and entailment
7. Morphological relations
8. Pertainymy

Synonymy

- The lexical items which have the same meaning or which share same componential features are synonyms and the relationship existing between them is synonymy.
- Synonymy does not necessarily mean that the items concerned should be identical in meaning, i.e. interchangeable in all contexts.
- Synonymy can be said to occur if lexical items are close enough in their meaning to allow a choice to be made between them in some contexts, without there being any difference in the meaning of the sentence as a whole.
- Take, for examples, the words *nuul* 'book' and *puttakam* 'book'. *avan nuul paTikkiRaan* 'he is reading a book' can entail *avan puttakam paTikkiRaan* 'he is reading a book'. The relation existing between *nuul* and *puttakam* is synonymy and *nuul* and *puttakam* are synonyms.

Hyponymy

- Hyponymy is the relationship which exists between specific and general lexical items, such that the former is included in the latter.
- The set of terms which are hyponyms of same superordinate term are co-hyponyms.
- Take for example the lexical items *pacu* 'cow', *erumai* 'buffalo' and *vilanku* 'animal'. *itu oru pacu* 'this is a cow'and *itu oru erumai* 'this is a buffalo' unilaterally entail *itu oru vilanku* 'this is an animal'. The relationship existing between *pacu* and *vilanku* and *erumai* and *vilanku* is hyponymy and *pacu* and *erumai* are co-hyponyms.

Compatibility

- The lexical items which overlap in terms of meaning and do not show systematic include-included relation and have some semantic traits in common, but differ in respect of traits that do not clash are said to be compatible.
- Take for example the words *naay* 'dog' and *cellappiraaNi* 'pet'. A dog could be a pet, but neither all pets are dogs nor all dogs are pets. The relationship existing between *naay* and *cellappiraaNi* is compatible.]

Incompatibility

- Incompatibility refers to sets of items where the choice of one item excludes the use of all the other items from that set.
- Take for example the words *puunai* 'cat' and *naay* 'dog'. *itu oru puunai* 'it is a cat' can entail *itu oru naay illai* 'it is not a dog'. The relation existing between *puunai* and *naay* is incompatible. Both come under the superordinate term *vilanku* 'animal'.
- Thus the incompatible items can be co-hyponyms of a superordinate item, that is items which are in incompatible can be related to one another by hyponymous relation. All kinds of oppositions can be included under incompatibility.
- If the opposition is between two lexical items, it is called binary opposition and if the opposition is between many lexical items it is called many-member opposition.

Binary Opposition **Cont...**

Antonymy, which is often considered opposite to synonymy, relies on the lexical relation, incompatibility. The table gives the typology of binary opposition:

Antonymy eg. *peritu* 'big': *ciRitu* 'small'

Complementarity eg. pakal 'day': iravu 'night'

Privative opposition eg. *ahRiNai* 'irrational' vs. *uyartiNai* 'rational'

Equipollent opposition eg. *aaN* 'male' vs. *peN* 'female'

Binary Opposition

Reciprocal Social roles eg.*maruttuvar* 'doctor': *ndooyaaLi* 'patient'

Kinship Relations eg. *appaa* 'father' : makan 'son'

ammaa 'mother' : *makaL* 'daughter'

Temporal Relations eg. *munnar* 'before' : *pinnar* 'after'

Spatial Relations eg. *melee* 'above' : *kiizee* 'below'

Complex Relations eg. *vaangku* 'buy' : *vil* 'sell'

Directional Opposition eg. *vandtuceer* 'arrive : *puRappaTu* 'depart'

vaa 'come' : *poo* 'go'

Orthogonal Opposition or Perpendicular Opposition

eg. *vaTakku* 'north' vs. *kizakku* 'east' and *meeRku* 'west'

kizakku 'east' vs. *teRku* 'south' and *vaTakku* 'north'

Antipodal Opposition or Diametrical Opposition

eg. *vaTakku* 'north' : *teRku* 'south'; *kizakku* 'east : *meeRku* 'west'

Multi-Member Opposition cont...

- In a serially ordered set there are two outer most member and all other lexical items in the set are ordered between them.
- In a cyclically ordered sets every lexical item is ordered between two others.
- Among serially ordered sets, scales may be distinguished from ranks according to whether the constituent lexical items are gradable or not.
- The ordering in scales in terms of incompatibility is typically less strict than it in ranks.

Multi-Member Opposition cont…

Serially ordered sets

SCALE

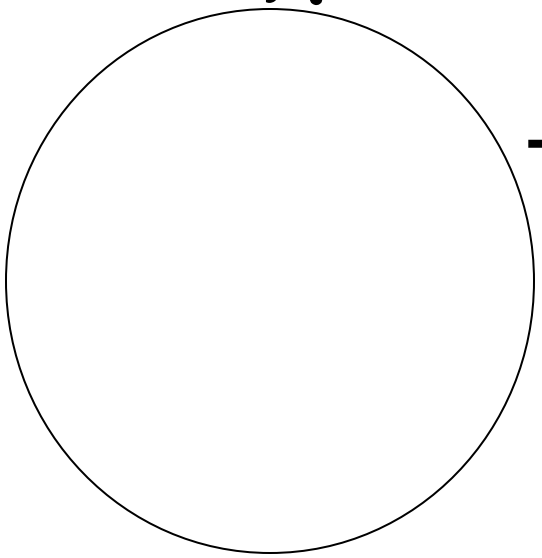
mikandanRu 'excellent'
|
ndanRu 'good'
|
tirupti 'satisfactory'
|
moocam 'bad'
|
mika moocam 'very bad

RANK

onRaavatu ‘first’
|
iraNTaavatu ‘second’
|
muunRaavtu ‘third’
|
ndaankaavatu ‘fourth’
|
aindtaavatu ‘fifth’

Multi-Member Opposition cont…

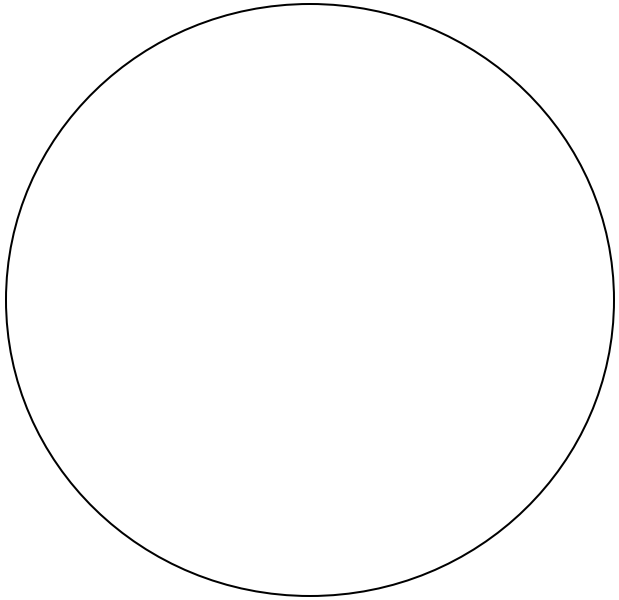
Cyclically ordered sets



Red சிவப்பு

Violet ஊதா

Orange ஆரஞ்சு

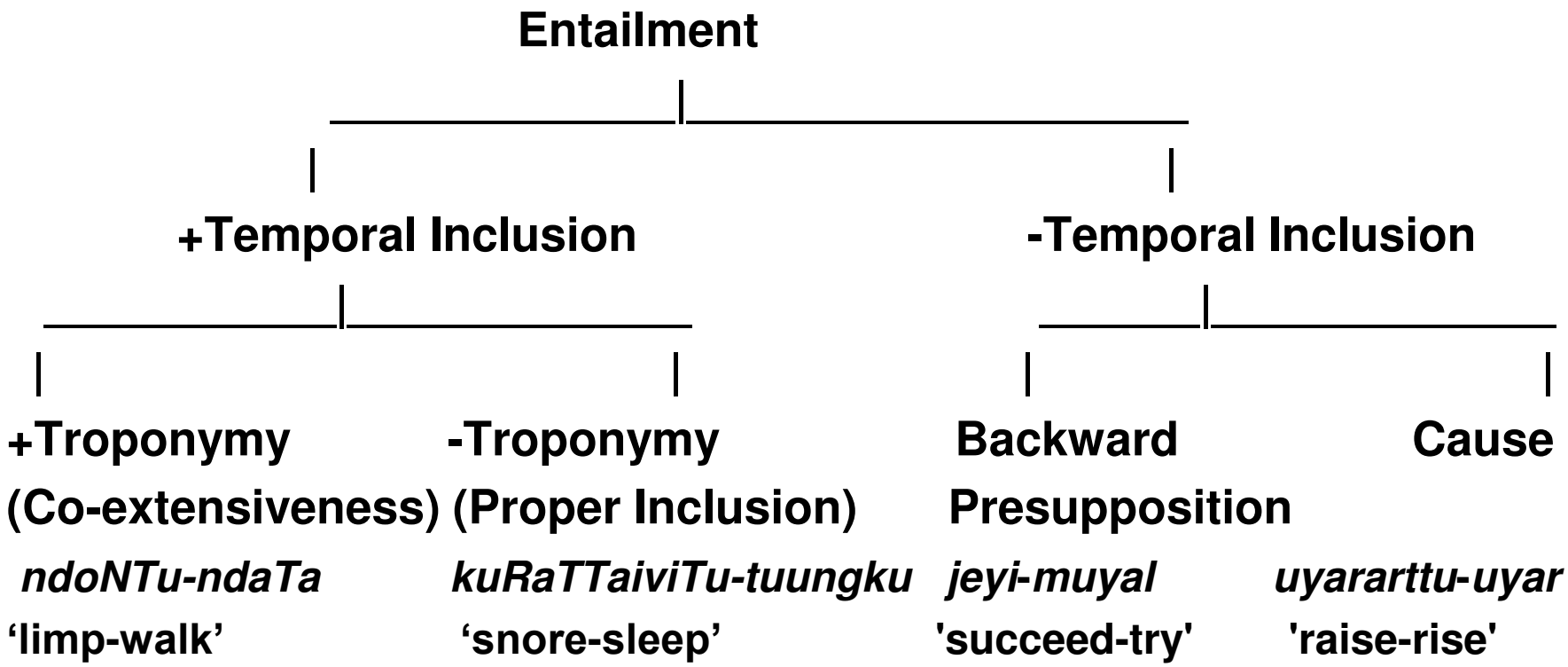


Indigo

Yellow மஞ்சள்

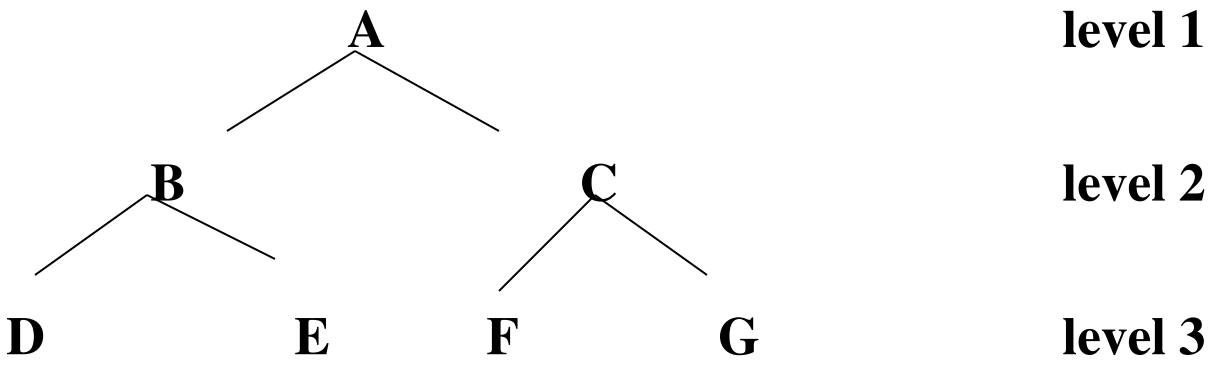
Blue நீலம்

Green பச்சை


Entailment
+Temporal Inclusion
-Temporal Inclusion
+Troponymy
(Co-extensiveness)
-Troponymy
(Proper Inclusion)
Backward
Presupposition
Cause
ndoNTu-ndaTa
‘limp-walk’
kuRaTTaiviTu-tuungku
‘snore-sleep’
jeyi-muyal
'succeed-try'
uyararttu-uyar
'raise-rise'

LEXICAL CONFIGURATION

Hierachies



Propotional series

A------B
| |
C----- D

Three relations will predict the fourth one.

2----- 3-----4
| | |
4------6-----8

2:4, 3:6, 4:?

Propotional series

cont...

apple----fruit
| |
dog------animal

mare----stallion
| |
ewe-----ram

cook---cooker
| |
heat----heater

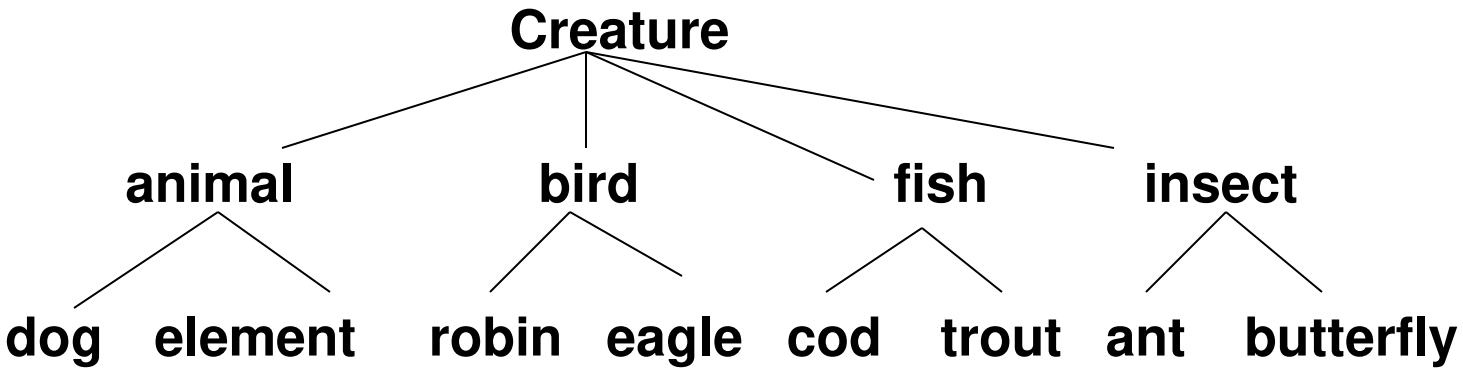
mare--stallion---foal
| | |
ewe----ram------- lamb
| | |
cow----bull-------calf

white----whiten
| |
black-----blacken

hear-----hearer
| |
speak---speaker

TAXONOMIES

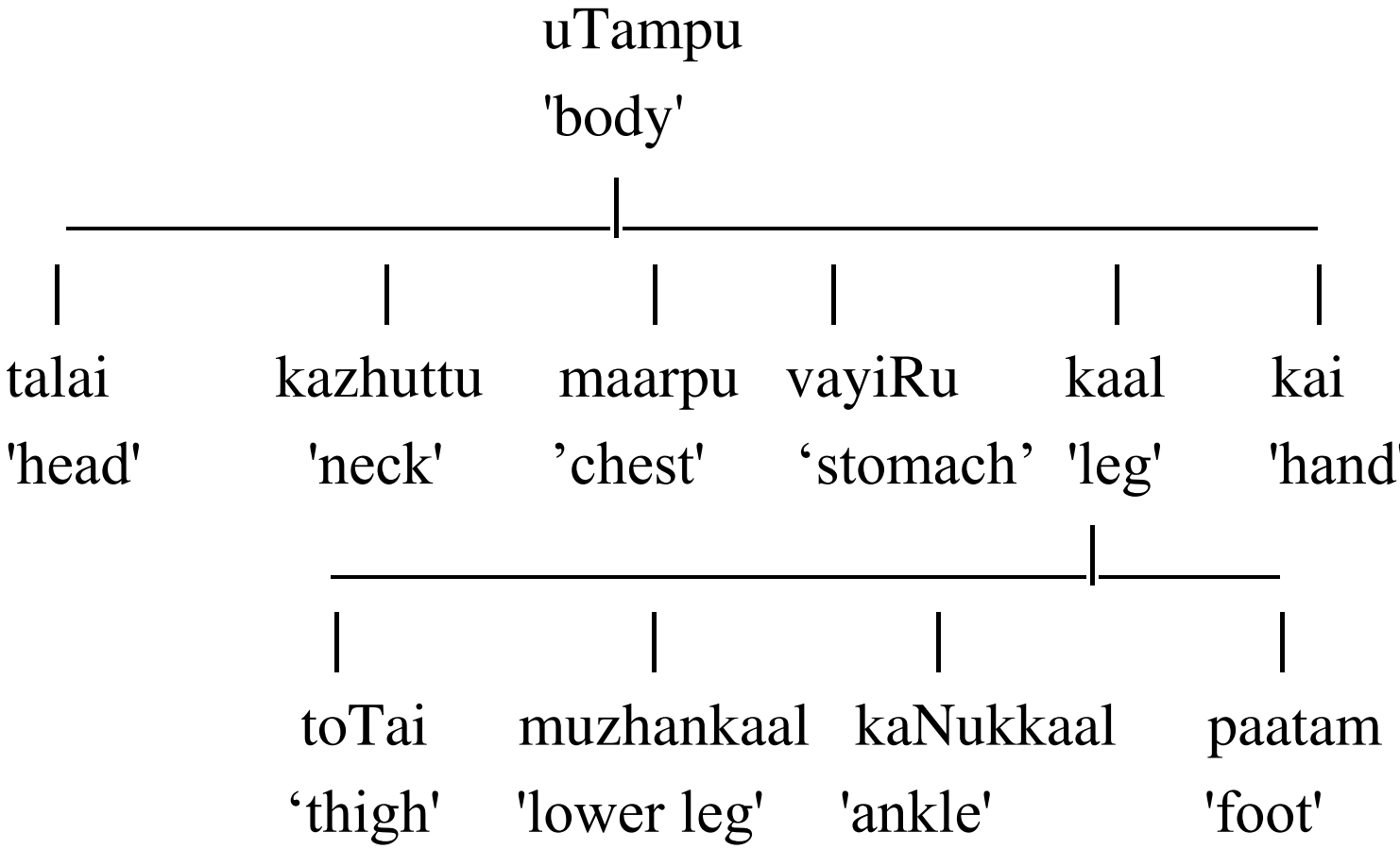
Hyponymy and incompatiblity



There is no inherent connections between hyponymy and incompatibility.

MERONOMIES

Meronymy (part-whole relation) also plays an important role in the hierarchical arrangement of lexical items. The division of the human body into parts can serve as a prototype for all part-whole hierarchies:

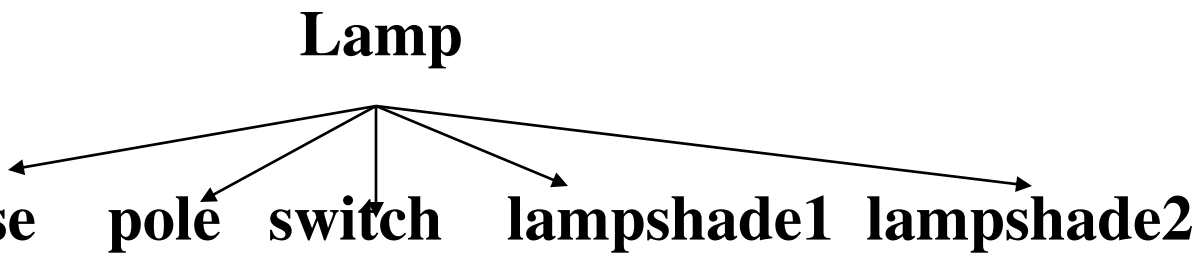


MERONOMIES Cont…

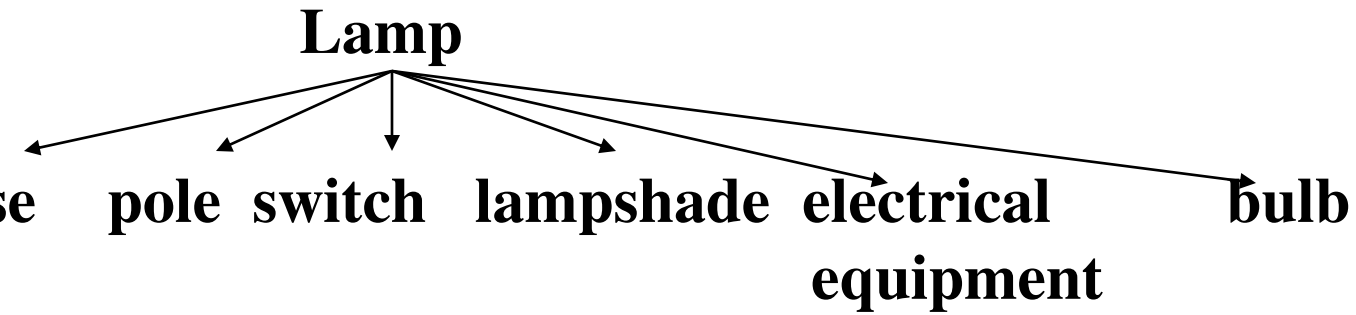
PARTS IN PERCEPTION AND THEIR RELATION TO CONCEPTUAL PARTS

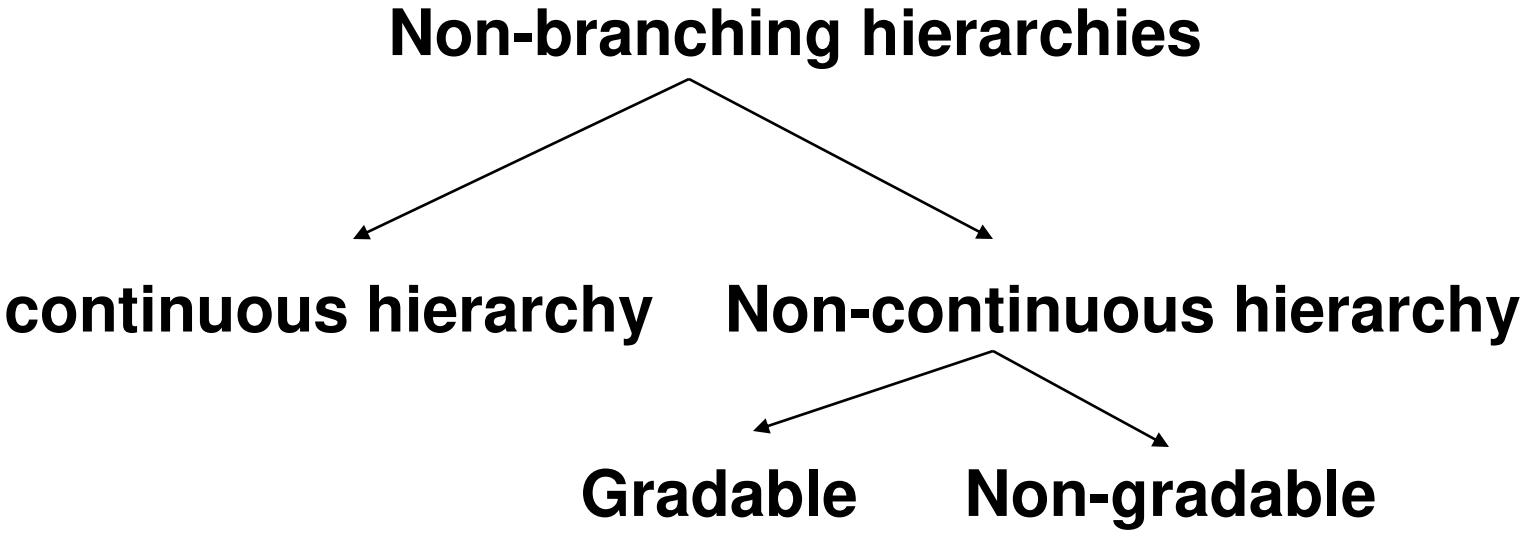
Perceptual segmentation (diagramic representation)

Perceptual partonomy:

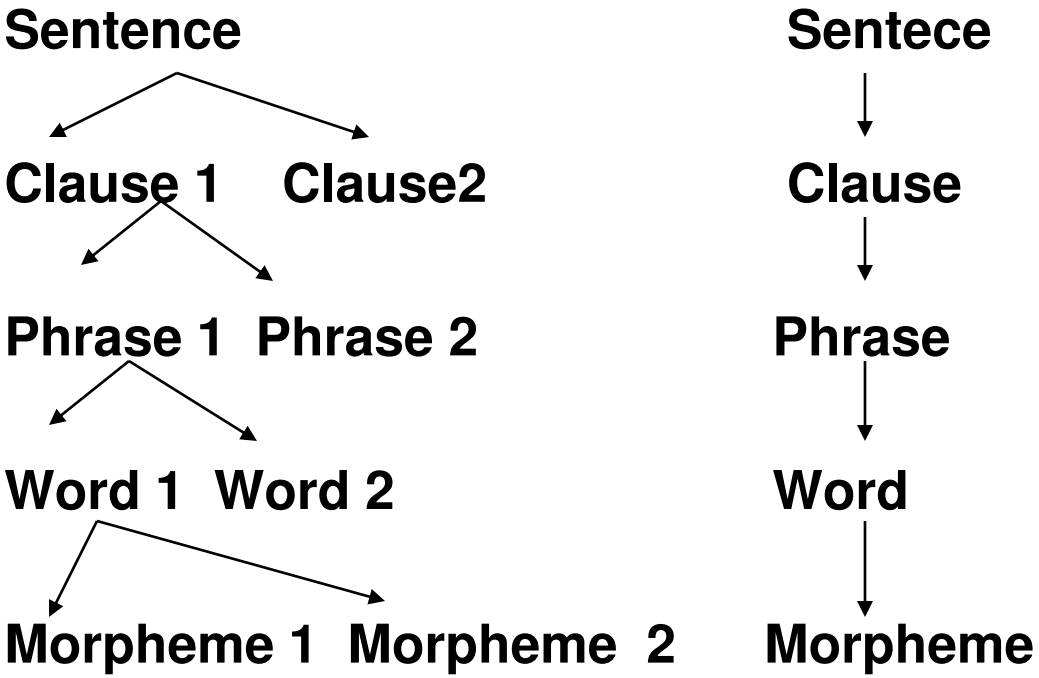


Conceptual partonomy:




Non-branching hierarchies
continuous hierarchy
Non-continuous hierarchy
Gradable
Non-gradable

From branching into non-branching



- **Continuous hierachies**

  Small : medium : big
  long : medium : short
  hot : warm : cold
- **Noncontinous and nongradable hierarchies**

  Colonel: Lieutenant Colonel: Major: Captain...
  one: two : three: four …

- **Noncontinous and gradable hierarchies**

  second : minute : hour : day
  millimeter : centimeter : decimeter : meter

- **Chains, Helices and Cycles**

PROBLEMS IN BUILDING THESAURUS

- **Scientific taxonomy vs. folk taxonomy**
- **Finding Superordinate terms**
- **Establishing semantic domains and sub domains**

Selection of lexical items

Whether to include the following items or not?

Stylistic alternants Eg. king: *raajaa, raacaa, iraacaa*

Derived forms Eg. student: *maaNavar; maaNavan; maaNavi*

Idioms & phrases Eg. covertly: *ilai maRai kaay maRaivaaka, terintum teriyaamalum*

Compounds Eg. *maavilai* 'mango leaf'; *maampuu* 'mango flower'; *maampazham* 'mango fruit';... |

Proper names & epithets Eg. Names of Lord Siva: *ndandti, pommaan, aalamarndtoon, ndampan, iRai, cooti, cemmal, andtivaNNan, taaNu,.. .*

- **Bringing out the net work of lexical relations**
- **Arrangement of lexical items**

  sky: *vaanam, aakaayam, aakaacam* (s.v.), *vaan* (h.v.), *viN* (h.v.); *meel vaanam; kiizh vaanam* [s.v. = spoken variety, h.v. = high variety]

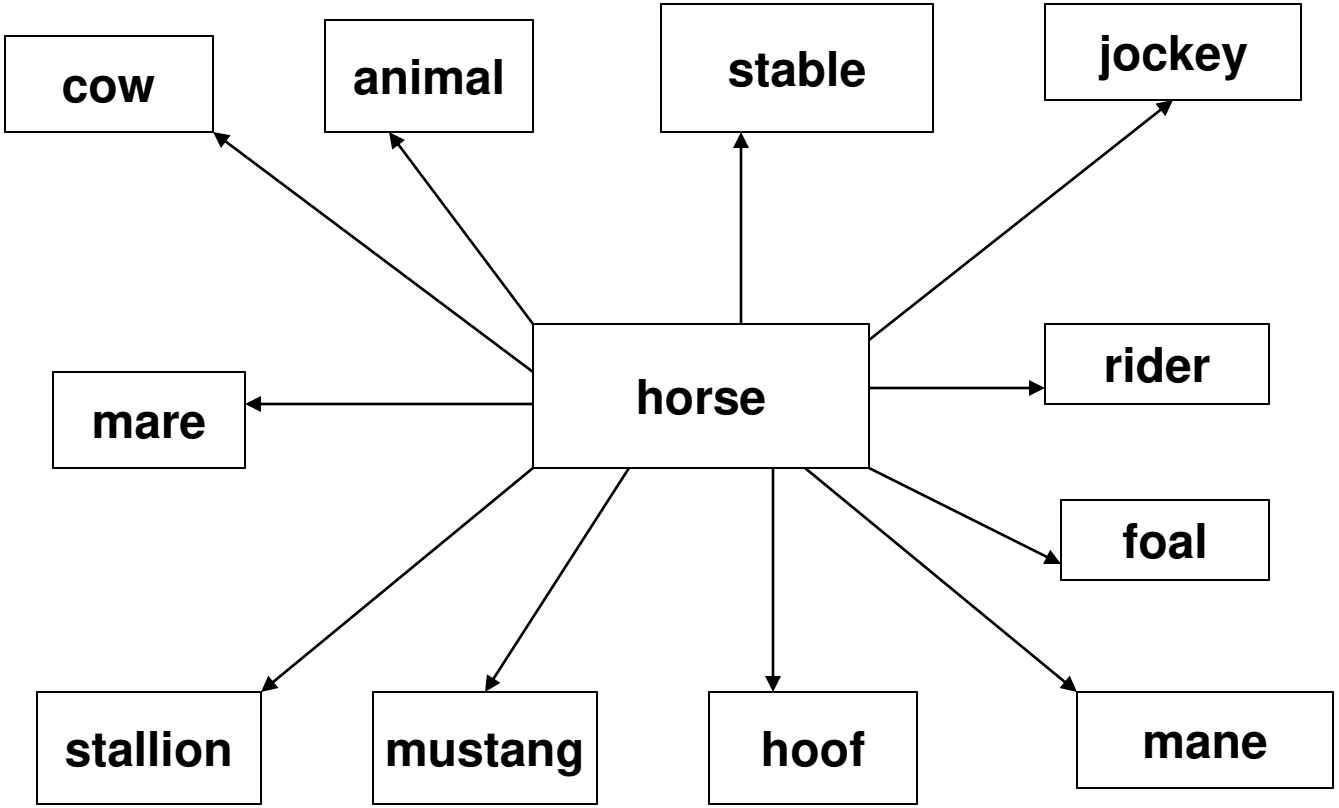
- **Relating basic meaning with derived meaning**

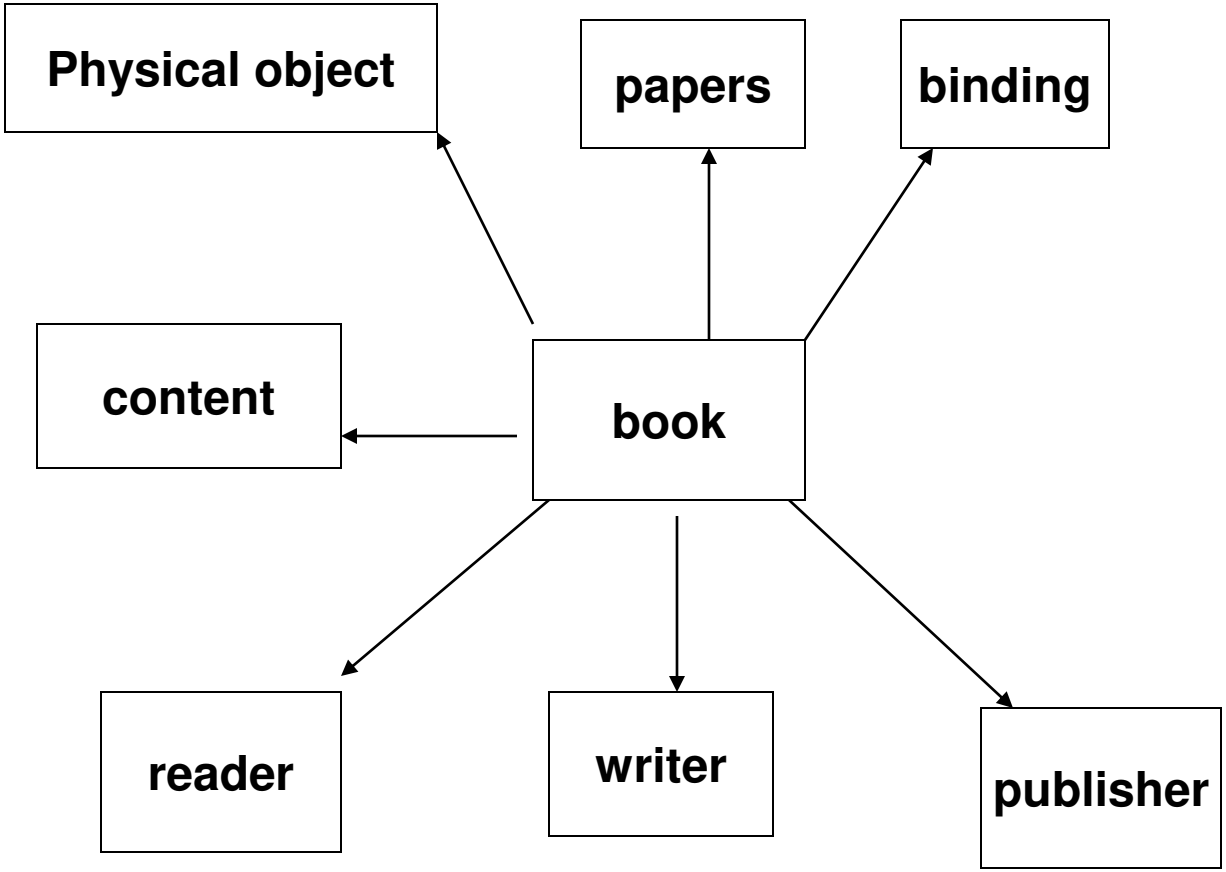
azhaku 'beauty'

azhakan 'handsome person'; *azhaki* 'beautiful woman'

azhakaana 'beautiful'

azhakaaka 'well'


cow
animal
stable
jockey
mare
horse
rider
foal
stallion
mustang
hoof
mane


Physical object
papers
binding
content
book
reader
writer
publisher

PREPARATION OF ELECTRONIC THESARUS

Linguistic issues comprise of :

1. **Hierarchical classification of lexical items based on at least four lexical relations: synonymy, hyponymy, compatibility, and incompatibility**
2. **Establishing semantic domains and sub domains based on distinguishing semantic or componential features**
3. **Selection of lexical items**
4. **Bringing out the network of relations existing between the lexical items which include co-occurrence and collocation**
5. **Arrangement of lexical items under terminal domains**
6. **Relating basic meaning with derivational meaning.**

PREPARATION OF ELECTRONIC THESARUS Cont...

The preparation of electronic thesaurus, in general, needs the two procedures:

[1] Using computer corpus for preparing a thesaurus and

[2] Creation of a database for building up a thesaurus.

The software must provide the facilities for entering and editing the raw data, classifying the lexical items in semi-automatic way and user friendly interface for accessing the Electronic Thesaurus in simple manner.

A non-electronic thesaurus (paper thesaurus) for Tamil has been prepared by the present author (Rajendran, 2001). The preparation of electronic thesaurus for Tamil is an ongoing project.

Wordnet as a thesaurus

- WordNets design resembles that of a thesaurus in that its building block is a synset consisting of all the words that express a given concept.
- Thus, the user of a WordNet who has a given concept in mind can find, by calling up one of the words expressing this concept, other words that lexicalize the same concept.
- But WordNet does much more than lists concepts in the form of synsets. The synsets are linked by means of a number of relations, including hyponymy, meronymy, and entailment.

THANKS